

Pictures



Screen Shots



Project Cost

Item	Unit Cost	Acquired	Qty	Notes
Pepsi Machine	\$ 600.00	\$ -	1	Bought by Travis
Main Components				
20x4 LCD Display	\$ 20.00	\$ -	1	
Keypad	\$ 12.26	\$ 12.26	1	Digi-key part #GH5008-ND
LED	\$ 2.00	\$ 8.00	4	Red panel-mount, two different sizes
LCD2S	\$ 37.95	\$ 37.95	1	
Mechanical				
Ribbon Cable Connector	\$ 2.60	\$ -	2	10 pins
10-pin socket connector	\$ 3.00	\$ -	4	
DEX connector/adaptor	\$ 20.00	\$ -	1	Got connectors and made cable
Enclosures				
Inner	\$ 12.64	\$ 12.64	1	Hammond model 1554N
Outer	\$ 10.98	\$ 10.98	1	Hammond model 1592
Other necessary tools				
Development kit - EDK Plus	\$ 225.00	\$ 225.00	1	
C# Embedded tutorial	\$ 15.00	\$ 15.00	1	
Totals:	\$ 961.43	\$ 321.83		

Testing & Evaluation

- LED
- Power Connection
- DEX Communication
 - Average Comm. Time:
- Wait times
- Vending

Problems Encountered

- Accessing the pins on the controller board
- Finding information detailing the DEX communication and standards

Lessons Learned

- Send byte arrays through serial port
- Need to clear buffer before receiving data a second time
- Timing with serial communication

Future Work

- Inventory readings
- Reset button to be pushed after servicing
- Expand code to include all numbers
 - (0-9, currently 0-1)
- Design PCB with ARM microcontroller and only needed components (cost saving)
- Improve outer enclosure to protect from vandalism
- Drill wires through back of enclosure into machine

Summary

- DEX Communication
- Encryption / Decryption algorithm
- Functional Keypad, LCD, LED's
- Free Vend Options:
 - Send DEX a command to momentarily set price to \$0
 - Connect wires to DEX control board

Questions?

